

Amendments to the Claims

The following listing of the claims replaces all prior versions and listings of the claims in the application:

Listing of Claims

1.-13. (Canceled)

14. (New) A catheter comprising:
an elongated body having an electrode disposed at a first end thereof;
at least one current-carrying wire extending through said body, which wire is electrically connected to said electrode;
a channel extending through said body and being adapted to supply a cooling fluid through said body, at least one outlet opening of the channel being provided in or near said first end; and
a temperature sensor arranged in said first end,
wherein said channel is thermally insulated from said electrode.

15. (New) The catheter according to claim 14, wherein said at least one outlet opening is provided in said first end.

16. (New) The catheter according to claim 14, wherein said channel has a longitudinal direction and said at least one outlet opening comprises a series of outlet openings, which outlet openings are arranged such that, during use, cooling fluid supplied through said channel flows out through said outlet openings in an outflow direction which forms an angle with said longitudinal direction.

17. (New) The catheter according to claim 16, wherein said angle is between 30 and 90 degrees.

18. (New) The catheter according to claim 14, wherein the at least one outlet opening is provided with a thermally insulating inner casing.

19. (New) The catheter according to claim 14, wherein the first end includes:
a core manufactured from a material having low thermal conductivity and/or low electrical conductivity; and

a casing having a good heat conductivity and/or good electrical conductivity relative to the core.

20. (New) The catheter according to claim 19, wherein the core is made of plastic, ceramic, or glass, and wherein the casing is made of metal.

21. (New) The catheter according to claim 19, wherein the temperature sensor is a thermocouple attached to the casing.

22. (New) The catheter according to claim 14, wherein at least one said outlet opening is provided in said body adjacent said first end.

23. (New) The catheter according to claim 14, wherein said first end is attached to said body, and said temperature sensor is provided in said first end at a distance from an interface formed between said body and said first end.

24. (New) The catheter according to claim 14, wherein the at least one outlet opening is formed such that cooling fluid flowing therefrom during use flows away from said first end.

25. (New) The catheter according to claim 14, wherein said first end has at least one metal exterior.

26. (New) The catheter according to claim 14, wherein the at least one outlet opening is arranged such that turbulence is generated around the first end when cooling fluid flows therethrough.

27. (New) A catheter comprising:
an elongated body having an outer surface and an electrode disposed at a first end thereof;
at least one live wire extending through said elongated body, said at least one live wire being connected to said electrode;
a channel extending through said elongated body, said channel being adapted to deliver a cooling fluid through said elongated body;
at least one thermally insulated outlet opening extending from said channel to said outer surface of said elongated body at or near said electrically conductive first end; and
a temperature sensor arranged in said first end.

28. (New) A catheter according to claim 27, wherein said channel has a longitudinal axis, wherein said at least one thermally insulated outlet opening comprises a series of outlet openings adapted to deliver said cooling fluid toward said outer surface of said elongated body in an outflow direction, and wherein said outflow direction is at an angle relative to said longitudinal axis.

29. (New) A catheter according to claim 28, wherein said at least one thermally insulated outlet opening comprises a thermally insulating inside casing.

30. (New) A catheter according to claim 27, wherein said at least one thermally insulated outlet opening is provided in said elongated body, adjacent to said first end.

31. (New) A catheter according to claim 27, wherein said first end is attached to said elongated body, wherein said temperature sensor is provided in said first end at a distance from an interface formed between said elongated body and said first end.

32. (New) A method for thermal treatment, in particular ablation, wherein a catheter having an electrode disposed at a first end thereof is provided in a body cavity, with said first end near or, preferably, against a wall of said body cavity, while at a distance from said first end a complementary electrically conductive element is arranged, whereupon an electric current is generated between said first end and said conductive element, such that said wall is heated, whereupon, adjacent said first end, a cooling fluid is dispensed, while the temperature of said first end is measured and is regulated, while direct cooling of said first end from the inside thereof by said cooling fluid is prevented.

33. (New) The method according to claim 32, wherein said cooling fluid, through a channel in said catheter, is supplied and dispensed in a protein containing liquid, while said cooling fluid in said catheter is separated from at least said first end through thermal insulation.

34. (New) The method according to claim 32, wherein the cooling fluid is dispensed in a protein containing liquid such as blood around said first end such that said protein containing liquid is cooled with the aid of said cooling fluid adjacent an interface between said protein containing liquid and said wall and near the outside of said first end and is kept at a temperature below the coagulation temperature of said protein containing liquid.

35. (New) The method according to claim 32, wherein said ablation is performed in a body cavity wherein blood is present, while the temperature of said blood is kept at a temperature below approximately 55°C and the temperature of said first end is regulated such that it remains below approximately 65°C.

36. (New) The method according to claim 32, wherein the cooling fluid comprises a physiological salt solution, wherein the physiological salt solution is introduced into said protein containing liquid such that, around said first end, turbulence occurs in said protein containing liquid.

37. (New) The method according to claim 32, wherein the electrically conductive element is disposed outside the body in which said cavity is located.